ADMINISTRATIVE RECORD
SF FILE NUMBER 1010000

0131569

EPA

POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT

REGION	SITE NUMBER (to be assigned by Hq)
8	

GENERAL INSTRUCTIONS: Complete Sections I and III through XV of this form as completely as possible. Then use the information on this form to develop a Tentative Disposition (*Section II*). File this form in its entirety in the regional Hazardous Waste Log File. Be sure to include all appropriate Supplemental Reports in the file. Submit a copy of the forms to: U.S. Environmental Protection Agency; Site Tracking System; Hazardous Waste Enforcement Task Force (*EN-335*); 401 M St., SW; Washington, DC 20460.

I. SITE IDENTIFICATION

A. SITE NAME: East Helena, Montana
B. STREET (*or other identifier*):
C. CITY: East Helena, MT
D. STATE: MT
E. ZIP CODE: 59635
F. COUNTY NAME: Lewis & Clark

G. SITE OPERATOR INFORMATION
1. NAME: ASARCO
2. TELEPHONE NUMBER: 406-227-5311
3. STREET: ASARCO Smelter
4. CITY: East Helena
5. STATE: MT
6. ZIP CODE:

H. REALTY OWNER INFORMATION (*if different from operator of site*)
1. NAME: ASARCO owns the smelter - some 8 1/2 sq. miles of land under various ownerships is involved
2. TELEPHONE NUMBER:
3. CITY:
4. STATE:
5. ZIP CODE:

I. SITE DESCRIPTION: ASARCO lead smelter + approx. 8 1/2 sq. miles of urban and rural land around smelter

J. TYPE OF OWNERSHIP
☐ 1. FEDERAL ☐ 2. STATE ☐ 3. COUNTY ☐ 4. MUNICIPAL ☒ 5. PRIVATE

II. TENTATIVE DISPOSITION (*complete this section last*)

A. ESTIMATE DATE OF TENTATIVE DISPOSITION (*mo., day, & yr.*):
B. APPARENT SERIOUSNESS OF PROBLEM
☒ 1. HIGH ☐ 2. MEDIUM ☐ 3. LOW ☐ 4. NONE

C. PREPARER INFORMATION
1. NAME: Gene Taylor
2. TELEPHONE NUMBER: 406-449-5486 FTS-585-5486
3. DATE (*mo., day, & yr.*): 6/8/83

III. INSPECTION INFORMATION

A. PRINCIPAL INSPECTOR INFORMATION
1. NAME: Gene Taylor
2. TITLE: Physical Scientist
3. ORGANIZATION: Montana Office - Region 8 - EPA
4. TELEPHONE NO. (*area code & no.*): 406-449-5486 FTS 585-5486

B. INSPECTION PARTICIPANTS

1. NAME	2. ORGANIZATION	3. TELEPHONE NO.
Jim Dunn	EPA - Montana Office	406-449-5486 FTS 585-5486
Lee Shanklin	" " "	" " "
Dave Maughn	Air Quality Bureau, MT. Dept. of Health, Envirmt Scienc	406-449-3454

C. SITE REPRESENTATIVES INTERVIEWED (*corporate officials, workers, residents*)

1. NAME	2. TITLE & TELEPHONE NO.	3. ADDRESS
John Nichol	Environmental Officer 406-227-5311	ASARCO, East Helena, MT 59635

0131570

III. INSPECTION INFORMATION (continued)

D. GENERATOR INFORMATION (sources of waste)

1. NAME	2. TELEPHONE NO.	3. ADDRESS	4. WASTE TYPE GENERATED
ASARCO Lead Smelter	406-227-5311	East Helena, MT 59635	heavy metals (Pb, As, Cd, Cu)

E. TRANSPORTER/HAULER INFORMATION

1. NAME	2. TELEPHONE NO.	3. ADDRESS	4. WASTE TYPE TRANSPORTED

F. IF WASTE IS PROCESSED ON SITE AND ALSO SHIPPED TO OTHER SITES, IDENTIFY OFF-SITE FACILITIES USED FOR DISPOSAL.

1. NAME	2. TELEPHONE NO.	3. ADDRESS

G. DATE OF INSPECTION (mo., day, & yr.)	H. TIME OF INSPECTION	I. ACCESS GAINED BY: (credentials must be shown in all cases)
		☐ 1. PERMISSION ☐ 2. WARRANT

J. WEATHER (describe)

IV. SAMPLING INFORMATION

A. Mark 'X' for the types of samples taken and indicate where they have been sent e.g., regional lab, other EPA lab, contractor, etc. and estimate when the results will be available.

1. SAMPLE TYPE	2. SAMPLE TAKEN (mark 'X')	3. SAMPLE SENT TO:	4. DATE RESULTS AVAILABLE
a. GROUNDWATER	X	MT. Dept of Health, Envirnt. Sciences	1978, 1980
b. SURFACE WATER	X	" " " "	yearly
c. WASTE (slag)	X	" " " " also NEA, Beaverton, Oregon	1981
d. AIR	X	" " also NEA " "	ongoing
e. RUNOFF	X	MT. Dept of Health, Envirnt Sciences	1978
f. SPILL			
g. SOIL	X	" " " "	1978 - present
h. VEGETATION	X	" " " "	1978 - present
i. OTHER (specify) house dust	X	" " " "	1978

B. FIELD MEASUREMENTS TAKEN (e.g., radioactivity, explosivity, PH, etc.)

1. TYPE	2. LOCATION OF MEASUREMENTS	3. RESULTS
Soil PH	ag land SE of Smelter	4.6 - 8.6 pH
surface water (plt, flow, etc.)	above and below ASARCO smelter	Various- samples have been taken for a number of years

Continue On Page 3

0131571

Continued From Page 2

IV. SAMPLING INFORMATION (continued)

C. PHOTOS
1. TYPE OF PHOTOS: ☐ a. GROUND ☒ b. AERIAL
2. PHOTOS IN CUSTODY OF: EPA - Montana Office

D. SITE MAPPED?
☒ YES. SPECIFY LOCATION OF MAPS: MT Dept of Health & Environmental Sciences

E. COORDINATES
1. LATITUDE (deg.-min.-sec.) 46° 35'
2. LONGITUDE (deg.-min.-sec.) 111° 55'

V. SITE INFORMATION

A. SITE STATUS
☒ 1. ACTIVE (Those inductrial or municipal sites which are being used for waste treatment, storage, or disposal on a continuing basis, even if infrequently.)
☐ 2. INACTIVE (Those sites which no longer receive wastes.)
☐ 3. OTHER (specify): _____ (Those sites that include such incidents like "midnight dumping" where no regular or continuing use of the site for waste disposal has occurred.)

B. IS GENERATOR ON SITE?
☐ 1. NO ☒ 2. YES (specify generator's four-digit SIC Code): _____

C. AREA OF SITE (in acres): 5400 +

D. ARE THERE BUILDINGS ON THE SITE? ☐ 1. NO ☒ 2. YES (specify): town of 2000 +, lead smelter complex

VI. CHARACTERIZATION OF SITE ACTIVITY

Indicate the major site activity(ies) and details relating to each activity by marking 'X' in the appropriate boxes.

'X'	A. TRANSPORTER	'X'	B. STORER	'X'	C. TREATER	'X'	D. DISPOSER
X	1. RAIL	X	1. PILE		1. FILTRATION		1. LANDFILL
	2. SHIP	X	2. SURFACE IMPOUNDMENT		2. INCINERATION		2. LANDFARM
	3. BARGE	X	3. DRUMS		3. VOLUME REDUCTION	X	3. OPEN DUMP
X	4. TRUCK		4. TANK, ABOVE GROUND		4. RECYCLING/RECOVERY	X	4. SURFACE IMPOUNDMENT
	5. PIPELINE		5. TANK, BELOW GROUND		5. CHEM./PHYS./TREATMENT		5. MIDNIGHT DUMPING
	6. OTHER (specify):		6. OTHER (specify):		6. BIOLOGICAL TREATMENT		6. INCINERATION
					7. WASTE OIL REPROCESSING		7. UNDERGROUND INJECTION
					8. SOLVENT RECOVERY		8. OTHER (specify):
					9. OTHER (specify):		

this is an active primary lead smelter - the problem area is some 8 1/2 sq miles of urban and rural land

E. SUPPLEMENTAL REPORTS: If the site falls within any of the categories listed below, Supplemental Reports must be completed. Indicate which Supplemental Reports you have filled out and attached to this for..

☐ 1. STORAGE ☐ 2. INCINERATION ☐ 3. LANDFILL ☐ 4. SURFACE IMPOUNDMENT ☐ 5. DEEP WELL
☐ 6. CHEM/BIO/PHYS TREATMENT ☐ 7. LANDFARM ☐ 8. OPEN DUMP ☐ 9. TRANSPORTER ☐ 10. RECYCLOR/RECLAIMER

VII. WASTE RELATED INFORMATION

A. WASTE TYPE
☐ 1. LIQUID ☒ 2. SOLID ☐ 3. SLUDGE ☐ 4. GAS

B. WASTE CHARACTERISTICS
☐ 1. CORROSIVE ☐ 2. IGNITABLE ☐ 3. RADIOACTIVE ☐ 4. HIGHLY VOLATILE
☒ 5. TOXIC ☐ 6. REACTIVE ☐ 7. INERT ☐ 8. FLAMMABLE
☐ 9. OTHER (specify):

C. WASTE CATEGORIES
1. Are records of wastes available? Specify items such as manifests, inventories, etc. below.

Continue On Reverse

0131572

VII. WASTE RELATED INFORMATION (continued)

2. Estimate the amount (specify unit of measure) of waste by category; mark 'X' to indicate which wastes are present.

a. SLUDGE	b. OIL	c. SOLVENTS	d. CHEMICALS	e. SOLIDS	f. OTHER
AMOUNT	AMOUNT	AMOUNT	AMOUNT	AMOUNT: unknown	AMOUNT
UNIT OF MEASURE	UNIT OF MEASURE	UNIT OF MEASURE	UNIT OF MEASURE	UNIT OF MEASURE: ppm	UNIT OF MEASURE
X (1) PAINT, PIGMENTS	X (1) OILY WASTES	X (1) HALOGENATED SOLVENTS	X (1) ACIDS	X (1) FLYASH	X (1) LABORATORY, PHARMACEUT.
(2) METALS SLUDGES	(2) OTHER(specify):	(2) NON-HALOGNTD. SOLVENTS	(2) PICKLING LIQUORS	(2) ASBESTOS	(2) HOSPITAL
(3) POTW		(3) OTHER(specify):	(3) CAUSTICS	(3) MILLING/MINE TAILINGS	(3) RADIOACTIVE
(4) ALUMINUM SLUDGE			(4) PESTICIDES	(4) FERROUS SMELTING WASTES	(4) MUNICIPAL
(5) OTHER(specify):			(5) DYES/INKS	(5) NON-FERROUS SMLTG. WASTES	(5) OTHER(specify):
			(6) CYANIDE	X (6) OTHER(specify): smelter is 94 yrs. old - heavy metals found in some 8½ sq mile area	
			(7) PHENOLS		
			(8) HALOGENS		
			(9) PCB		
			(10) METALS		
			(11) OTHER(specify):		

D. LIST SUBSTANCES OF GREATEST CONCERN WHICH ARE ON THE SITE (place in descending order of hazard)

1. SUBSTANCE	2. FORM (mark 'X') a. SOLID	b. LIQ.	c. VAPOR	3. TOXICITY (mark 'X') a. HIGH	b. MED.	c. LOW	d. NONE	4. CAS NUMBER	5. AMOUNT	6. UNIT
lead	X			X						
arsenic	X	X		X						
cadmium	X			X						
copper	X					X				

VIII. HAZARD DESCRIPTION

FIELD EVALUATION HAZARD DESCRIPTION: Place an 'X' in the box to indicate that the listed hazard exists. Describe the hazard in the space provided.

X A. HUMAN HEALTH HAZARDS

Approx. 3650 people live in the area with soils contaminated by heavy metals (Pb, As, Ca, Cu). A major concern is health effects on children of high lead levels (1000 ppm has been found on soils). A 1975 lead/blood survey revealed elevated blood/lead levels (31 of 90 children from 1.5 to 10 yrs showed at least 30 micrograms of lead per 100 ml of whole blood).

Continue On Page 5

0131573

VIII. HAZARD DESCRIPTION (continued)

[X] B. NON-WORKER INJURY/EXPOSURE

See A above

Approximately 400 children presently live in the area of concern (1-5 yrs. of age).

[X] C. WORKER INJURY/EXPOSURE

The ASARCO Smelter and associated facility-American CHEMET (paint pigment / animal supplements) employ approx 330 workers. OSHA has documented high lead exposure in the drossing operation at ASARCO and company was fined.

[X] D. CONTAMINATION OF WATER SUPPLY

Municipal wells in the area have met drinking water standards (1978, 1980). Contamination of numerous private wells in the area is unknown.

[X] E. CONTAMINATION OF FOOD CHAIN

Numerous vegtable gardens and wheat farms exist in the area. Heavy metals uptake and airborne deposition on these crops is of concern.

[X] F. CONTAMINATION OF GROUND WATER

See D above

Studies are underway to ascertain Quality of all ground and surface water supplies in area.

[X] G. CONTAMINATION OF SURFACE WATER

See D and F above

An irrigation ditch that flows under and near ASARCO smelter has shown high levels of ARSenic. Spring run-off from area is high in all metals.

VIII. HAZARD DESCRIPTION (continued)

☒ H. DAMAGE TO FLORA/FAUNA

Damage to area vegetation (grasses and dry-land wheat) has been noted (SCS). Studies underway in 1983 will attempt to quantify crop damage.

☐ I. FISH KILL

☒ J. CONTAMINATION OF AIR

The ASARCO lead smelter, operational since 1888, is source of heavy metals in area. The smelter is now in compliance with NAAQS on SO_2 — is not in compliance with lead standard ~~and~~ with TSP (a non-attainment area).

☒ K. NOTICEABLE ODORS

MT. Dept of Health and Environmental Sciences has received complaints related to American CHEMET.

☒ L. CONTAMINATION OF SOIL

Lead levels of 1000 ppm have been found in soils (top 1") in an 8.4 sq. mile area around the ASARCO smelter. Arsenic and cadmium levels are also high.

☒ M. PROPERTY DAMAGE

Soil has probably been rendered non-productive in some areas and has lost productivity in a larger area. Studies are underway to quantify this.

Continued From Page 6

VIII. HAZARD DESCRIPTION *(continued)*

☐ N. FIRE OR EXPLOSION

☐ O. SPILLS/LEAKING CONTAINERS/RUNOFF/STANDING LIQUID

☐ P. SEWER, STORM DRAIN PROBLEMS

☐ Q. EROSION PROBLEMS

☐ R. INADEQUATE SECURITY

☐ S. INCOMPATIBLE WASTES

Continue On Reverse

VIII. HAZARD DESCRIPTION *(continued)*

☐ T. MIDNIGHT DUMPING

☐ U. OTHER *(specify)*:

IX. POPULATION DIRECTLY AFFECTED BY SITE

A. LOCATION OF POPULATION	B. APPROX. NO. OF PEOPLE AFFECTED	C. APPROX. NO. OF PEOPLE AFFECTED WITHIN UNIT AREA	D. APPROX. NO. OF BUILDINGS AFFECTED	E. DISTANCE TO SITE *(specify units)*
1. IN RESIDENTIAL AREAS	3650	3650 within 8.4 sq. miles		
2. IN COMMERCIAL OR INDUSTRIAL AREAS				
3. IN PUBLICLY TRAVELLED AREAS				
4. PUBLIC USE AREAS *(parks, schools, etc.)*				

X. WATER AND HYDROLOGICAL DATA

A. DEPTH TO GROUNDWATER *(specify unit)*	B. DIRECTION OF FLOW	C. GROUNDWATER USE IN VICINITY
0-44 feet	NNE	numerous wells
D. POTENTIAL YIELD OF AQUIFER	**E. DISTANCE TO DRINKING WATER SUPPLY** *(specify unit of measure)*	**F. DIRECTION TO DRINKING WATER SUPPLY**
unknown	0-44 feet	

G. TYPE OF DRINKING WATER SUPPLY

☒ 1. NON-COMMUNITY < 15 CONNECTIONS* ☒ 2. COMMUNITY *(specify town)*: East Helena, MT > 15 CONNECTIONS

☒ 3. SURFACE WATER ☒ 4. WELL

Continue On Page 9

0131577

Continued From Page 8

X. WATER AND HYDROLOGICAL DATA (continued)

H. LIST ALL DRINKING WATER WELLS WITHIN A 1/4 MILE RADIUS OF SITE

1. WELL	2. DEPTH (specify unit)	3. LOCATION (proximity to population/buildings)	4. NON-COMMUNITY (mark 'X')	5. COMMUNITY (mark 'X')
		a survey of wells in	X	X
		area in underway (USGS)		
		there are 2 municipal		
		wells, several Wtr. and Son		
		District wells, plus many		
		private wells in the area.		

I. RECEIVING WATER

1. NAME: Prickly Pear Ck

☐ 2. SEWERS ☒ 3. STREAMS/RIVERS ☐ 4. LAKES/RESERVOIRS ☐ 5. OTHER (specify):

6. SPECIFY USE AND CLASSIFICATION OF RECEIVING WATERS

Site drains into Prickly Pear Ck and eventually into Missouri River. Surface water is used for irrigation and stock watering in impact area

XI. SOIL AND VEGITATION DATA

LOCATION OF SITE IS IN:

☐ A. KNOWN FAULT ZONE ☐ B. KARST ZONE ☐ C. 100 YEAR FLOOD PLAIN ☐ D. WETLAND

☐ E. A REGULATED FLOODWAY ☐ F. CRITICAL HABITAT ☐ G. RECHARGE ZONE OR SOLE SOURCE AQUIFER

XII. TYPE OF GEOLOGICAL MATERIAL OBSERVED

Mark 'X' to indicate the type(s) of geological material observed and specify where necessary, the component parts.

'X'	A. OVERBURDEN	'X'	B. BEDROCK (specify below)	'X'	C. OTHER (specify below)
	1. SAND				
	2. CLAY				
	3. GRAVEL				

XIII. SOIL PERMEABILITY

☐ A. UNKNOWN ☐ B. VERY HIGH (100,000 to 1000 cm/sec.) ☐ C. HIGH (1000 to 10 cm/sec.)

☐ D. MODERATE (10 to .1 cm/sec.) ☐ E. LOW (.1 to .001 cm/sec.) ☐ F. VERY LOW (.001 to .00001 cm/sec.)

G. RECHARGE AREA

☐ 1. YES ☐ 2. NO 3. COMMENTS:

H. DISCHARGE AREA

☐ 1. YES ☐ 2. NO 3. COMMENTS:

I. SLOPE

1. ESTIMATE % OF SLOPE | 2. SPECIFY DIRECTION OF SLOPE, CONDITION OF SLOPE, ETC.

J. OTHER GEOLOGICAL DATA

This is a large area (8.4 + 50 miles) with varying soil types.

0131578

Continued From Front

XIV. PERMIT INFORMATION

List all applicable permits held by the site and provide the related information.

A. PERMIT TYPE (e.g., RCRA, State, NPDES, etc.)	B. ISSUING AGENCY	C. PERMIT NUMBER	D. DATE ISSUED (mo., day, & yr.)	E. EXPIRATION DATE (mo., day, & yr.)	F. IN COMPLIANCE (mark 'X') 1. YES	2. NO	3. UNKNOWN
ASARCO construction & operating - Air	MT. Air Quality Bureau	16 total permits	1971 - present	open	✓		
American CHEMET construction & operating	11	11 total permits	1973-81	open	✓		

XV. PAST REGULATORY OR ENFORCEMENT ACTIONS

☐ NONE ☒ YES (summarize in this space)

From 1972 to 1981 the State Air Quality Bureau required improvements in SO_2 control - smelter is now in compliance with NAAQS. Area is still designated non-attainment for TSP. ASARCO continues to violate lead standard.

NOTE: Based on the information in Sections III through XV, fill out the Tentative Disposition *(Section II)* information on the first page of this form.

EAST HELENA

The ASARCO lead smelter has been in operation at the East Helena site for some 94 years. Investigations began under air quality regulations and the development of a SIP for the smelter facilities revealed a high level of lead, arsenic, cadmium, and possibly other metals in the soils in the area around the smelter.

The ASARCO primary lead and zinc smelter in East Helena, Montana, has emitted particulates containing heavy metals into the air during its history of operation. Some of these particulates have settled into the soil in the vicinity of the plant. Recent data obtained by EPA and the State of Montana indicate that an area of 8.4 square miles around the smelter contain at least 1,000 parts per million (ppm) of lead in the upper soil horizon. The EPA Lead Smelter Study Task Force has recommended that soil lead values of 1,000 ppm or greater warrant further investigation.

The concerns are that the soil can be re-entrained into the air as inhalable particulates, can be directly ingested (especially by young children), and can possibly run off or leach metals into surface waters and ground waters. A lead blood analysis in 1975 indicated that children in East Helena had elevated blood levels.

In order to evaluate the magnitude of possible releases into the environment from this source and their potential impact, further investigations are underway.

EPA has signed a cooperative agreement with the Montana office of the USGS. Under this agreement the USGS has developed a plan of study to investigate ground water flows and possible metals contamination on the study area.

Second, the State of Montana, the Center for Disease Control, and EPA have set up a lead blood screening study for East Helena children in East Helena. This study will be conducted in July-August 1983.

Last, EPA is developing a contract to have Montana State University soils scientists develop a plan to gather soils and vegetation data. This effort is aimed at better defining the extent and nature of the area's soil contamination and its effects on the environment.

Enforcement Status

East Helena, Montana

No formal enforcement actions have been taken to date pending isolation and confirmation of the extent of the contamination. Future activities will be based on more positive identification of the areal extent, mobility, and health/environmental impacts of the heavy metals. Studies to answer these questions are underway with results expected in late 1983 to early 1984.

ASARCO has been advised on the Section 106 Order and other enforcement options. The Company has been cooperative and open in all dealings to date.

The East Helena site has been submitted (June 9, 1983) for inclusion on the National Priorities List. It has a HRS score of 60.0.

Response Status

East Helena, Montana

EPA and the Montana Department of Health and Environmental Sciences are actively working to define the nature and extent of heavy metals contamination at the East Helena site (approximately 8.4 square miles).

Studies underway include:

(1) A Center for Disease Control and State Health Department lead/blood screening of area children (1-5 years age group). This study includes arsenic and cadmium testing. The study will also attempt to answer questions about the pathway of the heavy metals from source (smelter, soil) to human subjects;

(2) An examination of possible ground and surface water contamination. The plan of study and preliminary survey being conducted by the USGS;

(3) A comprehensive soils testing study to define areal extent of metals contamination, mobility of the metals in the soil profile, and effects of metals on crops and livestock (contract to develop plan of study to be let June 14, 1983).

EPA and the Montana Air Quality Bureau, Department of Health and Environmental Sciences are in on-going negotiation with ASARCO over approval of a final SIP. The smelter is now in compliance with NAAQS for SO_2 but remains in violation of the lead standard.